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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/539,592

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Reinhold Rueger

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MILLEN, WHITE, ZELANO & BRANIGAN, P.C.
2200 CLARENDON BLVD.
SUITE 1400
ARLINGTON, VA 22201

EXAMINER

PARVINI, PEGAH

ART UNIT

PAPER NUMBER

1755

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/23/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/539,592

Applicant(s)

RUEGER ET AL.

Examiner

Pegah Parvini

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 1,5 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 20050617.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: In page 12, line 10 (2nd paragraph), the word “for” has been repeated twice in :...the preparation of printing inks for, for...” . In addition, in page 13, line 30 (5th paragraph), the word “in” has been repeated twice.

Appropriate correction is required.

Claim Objections

2. Claims 1, 5, and 12 are objected to because of the following informalities: The spelling of the following words, “characterised”, “coloured”, and “fluidised”, in claims 1, 5, and 12 respectively, need to be changed to “characterized”, “color”, and “fluidized”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claim 13 provides for the use of the interference pigments according to claim 1 in paints, coatings, automotive paints, powder coatings, printing ink, security printing inks, plastics, ceramic materials, glasses, paper, in toners for electrophotographic printing processes, in seed, in greenhouse sheeting, and tent awnings, as absorbers in the laser marking of paper and plastics, in cosmetic formulations, for the preparation of pigment pastes with water, organic and/or aqueous solvents, and for the preparation of pigment preparations and dry preparations, but, since the claim does not set forth any steps

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involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 13 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4, 6-9 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application Publication No. 2002/0192585 A1 to Brenner et al.

5. Regarding claim 1, Brenner et al. teach a pigment comprising of platelet-shaped substrates made of mica, glass, graphite, graphite-coated mica, aluminum oxide flakes,

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iron oxide flakes, TiO₂ flakes, or SiO₂ flakes; the substrates have a thickness of from 10 to 1000 nm, preferably from 40 to 500 nm (paragraph [0010]). In addition, the substrate is coated with a plurality of thin layers, and it is particularly favorable for layers of high refractive index and those of low refractive index to follow one another (paragraph [0010]). Brenner et al. teach that the disclosed multilayered pigment is used in security prints and the production of images by electrophotographic dry toner for laser printing (paragraphs [0007], [0017]).

It should be noted that claims 1 reads "... (B) a high-refractive-index coating having a refractive index n of >1.8 and/or (C) an interference system consisting of alternating high- and low-refractive-index layers...". In addition, the existence of an outer protective layer is claimed to be optional.

It is, further, noted that the substrate is the same as layer (A).

6. Regarding claims 2 and 3, Brenner et al. teach that the platelet-shaped substrates are made of mica, glass, graphite, graphite-coated mica, aluminum oxide flakes, iron oxide flakes, TiO₂ flakes, or SiO₂ flakes (paragraph [0010]).

7. Regarding claim 4, the prior art teach the thickness of the substrate is generally from 10 to 1000 nm, preferably from 10 to 500 nm (paragraph [0010]).

8. Regarding claims 6 and 7, the prior art teach that the disclosed multilayered pigment is surrounded by a first layer of a metal oxide of high refractive index, a second

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layer of a metal oxide of low refractive index, and more layers; in addition, Brenner et al. disclose that the high refractive index metal oxides are TiO_2 , ZrO_2 , Fe_2O_3 , Fe_3O_4 , Cr_2O_3 , and/or ZnO (paragraph [0010]).

9. Regarding claim 8, the prior art teach the use of TiO_2 as a metal oxide with high refractive index (paragraph [0010]). It is noted that the prior art, also, disclose that the first layer being coated on the platelet-shaped substrate made up of high refractive index material.

10. Regarding claim 9, Brenner et al. disclose the application of a plurality of thin layers on the substrates as well as being favorable and preferred to apply high refractive index layers and low refractive index layers in a way that they follow one another (paragraph [0010]).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 5, and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brenner et al. in view of PCT Application No. PCT/EP01/03159 to Steudel et al.

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This rejection is over PCT/EP01/03159; however, for convenience, the paragraph numbers of the equivalent US Patent, which is US Patent Publication No. 2003/0092815, will be cited below.

13. Regarding claim 5, Brenner et al. disclose platelet-shaped luster pigment being multicoated with alternating layers of high and low refractive index in which the thickness of the first layer is between 10 to 1000 nm, preferably from 40 to 500 nm; the Brenner et al., further, disclose mica, glass, SiO₂ flakes, TiO₂ flakes as some examples of the substrates used.

The prior art is silent as to the use of carbon black particles, metal particles and/or colored pigments in the first layer.

Steudel et al., however, teach a multilayer pigments based on a platelet-form, transparent, colored or uncolored matrix consisting of, for example, mica, SiO₂, glass, TiO₂, graphite or Al₂O₃ platelets; the substrate platelets are coated with metal oxides in such a way that layer structures of alternating layers of high and low refractive index is formed (paragraph [0019]). The number of layers could be 2, 3, 4, 5, 6, or 7; in addition, Steudel et al. disclose titanium dioxide, zirconium oxide, cerium oxide, iron oxides (Fe₂O₃ or Fe₃O₄), iron/titanium oxides (iron titanates) and/or chromium oxide, BiOCl, FeO(OH), spinels, titanates, aluminates, chromates, tungsten, tin oxides (also doped) or nitrides, for example, TiN, in particular TiO₂ and/or Fe₂O₃ as the metal oxides with high refractive index (paragraph [0019]). In addition, Steudel et al. teach the optional use of a protective layer to improve the light, weather and chemical stability of the pigment

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(paragraph [0040]). Furthermore, Steudel et al. disclose that finely divided particles such as carbon black can be introduced into the layers of high or low refractive index (paragraph [0039]).

Brenner et al. and Steudel et al. are analogous art because they are from the same field of endeavor of multilayer pigments with platelet-shaped substrates of the same or similar type.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Brenner et al. to include carbon black into the high refractive index layer as that taught by Steudel et al. into the pigment disclosed by Brenner et al. motivated by the fact that specific color effects are achieved (paragraph [0039]).

14. Regarding claim 10, Brenner et al. teach luster pigments containing platelet-shaped substrates which are coated with a plurality of high and low refractive index layers in which an example of the high refractive index material is TiO_2 . Brenner et al., further, disclose a platelet-shaped substrate surrounded by a first layer of a metal oxide of high refractive index, a second layer of a metal oxide of low refractive index and more layers.

Brenner et al. disclose $\text{SiO}_2/\text{MgF}_2$ as a low refractive index material, but they do not, specifically, disclose only SiO_2 as a low refractive index material used.

Steudel et al. teach SiO_2 as a metal oxide of low refractive index.

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Brenner et al. and Steudel et al. are analogous art because they are from the same field of endeavor of multilayer pigments with platelet-shaped substrates of the same or similar type.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Brenner et al. by including SiO_2 instead of $\text{SiO}_2/\text{MgF}_2$ as the low refractive index layer as that taught by Steudel et al. into the pigment disclosed by Brenner et al. in order to obtain alternating layers of high and low refractive index metal oxides coated on the platelet-shaped substrate.

The suggestion would have been that Steudel et al. teach multilayer pigments with platelet-shaped substrate made up of mica, SiO_2 , glass, TiO_2 , graphite, etc. They, further, disclose that alternating layers of high and low refractive index layers of metal oxides are coated onto the substrate.

Therefore, it would have been obvious to combine Steudel et al. with Brenner et al. to obtain the invention as specified in claim 10.

15. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brenner et al. in view of Steudel et al. as applied to claim 1 above, and further in view of US Patent No. 6,579,355 B1 to Schmidt et al.

16. Regarding claim 12, Brenner et al. disclose a pigment with platelet-shaped substrate made up of glass flakes, mica flakes, etc having a plurality of thin layers of

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high and low refractive index materials being coated on it. They, further, disclose the thickness of the platelet-shaped substrate to be from 40 to 500 nm.

Brenner et al. is silent as to the process through which the disclosed pigment is made.

Steudel et al. disclose a multilayer pigment with platelet-shaped substrate made up of mica, glass, etc. The substrate being coated with metal oxides of high and low refractive index layers in an alternating form. Furthermore, Steudel et al. teach the wet chemical coating as the process through which the coating of the substrate platelets are carried out (paragraph [0019]).

Steudel et al., however, is silent as to the details of a wet-chemical process in which metal salt in aqueous medium are decomposed hydrolytically.

Schmidt et al. teach multilayer pigments containing substrates made up of natural or synthetic mica, platelet-shaped iron or aluminum oxides, glass, SiO₂, etc having a size of between about 100 to 5000 nm (column 2, lines 40-54). In addition, the prior art disclose that the indicated multilayer pigment comprises of metal oxides of high and low refractive index layers respectively (column 2, lines 21-30). Furthermore, Schmidt et al. disclose that the metal oxide layers are preferably applied by wet-chemical process through which substrate particles are suspended in water and admixed with one or more hydrolysable metal salts at a suitable hydrolysis pH, chosen so that the metal oxides are directly precipitated onto the platelets without occurrence of co-precipitation (column 4, lines 15-16, and 24-48).

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Brenner et al., Steudel et al., and Schmidt et al. are all analogous art because they are from the same field of endeavor of multilayer pigments with platelet-shaped substrate made up of same or very similar materials comprising of high and low refractive index layers of metal oxides.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify Steudel et al. to include the detail description of a coating process done by wet-chemical method as that taught by Schmidt et al. and to include this in Brenner et al. in order to have the detailed process through which the multilayer pigment of platelet-shaped substrate is made.

The motivation would have been that the three prior art all disclose multilayer pigments with platelet-shaped substrate of the same or very similar material in which high and low refractive index layers of metal oxides are coated onto the substrate.

Therefore, it would have been obvious to combine Schmidt et al. with Steudel et al. and with Brenner et al to obtain the invention as specified in claim 12.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

PCT /EP00/07947 to Anselmann et al.

PCT/EP92/02351 to Bauer et al.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pegah Parvini whose telephone number is 571-272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PP

J. A. LORENZO
SUPERVISORY PATENT EXAMINER

